

# Module 32

## Memory Storage and Retrieval

### Before You Read

#### Module Summary

Module 32 describes the capacity of our long-term memories and the roles of various brain structures in memory processing. Also discussed are how emotions and changes at the synaptic level affect our memory processing. The module closes with a description of how external cues, internal emotions, and order of appearance influence memory retrieval.

Before beginning the module, take a moment to read each of the following terms and names you will encounter. You may wish to make vocabulary cards for each.

#### Key Terms

hippocampus	relearning
flashbulb memory	priming
long-term potentiation (LTP)	mood-congruent memory
recall	serial position effect
recognition	

#### Key Names

Eric Kandel  
Hermann Ebbinghaus

### While You Read

Answer the following questions/prompts.

#### 32-1

1. Discuss our current understanding of the limits of long-term memory.
  
  
  
  
  
  
  
  
  
  
2. How do we process and store memories?

**32-2**

1. Discuss the frontal lobe's role in processing particular types of memory.
2. Explain how the hippocampus functions in the encoding of explicit memories.
3. Describe the role that sleep plays in memory consolidation.

**32-3**

1. Apply your knowledge of classical conditioning to the situation in which a patient becomes afraid of a tack. Identify the unconditioned stimulus (US), unconditioned response (UR), neutral stimulus (NS), conditioned stimulus (CS) and the conditioned response (CR).
2. Discuss how the cerebellum plays a role in memory processing.

3. Explain the role of the basal ganglia in procedural memory.

4. Briefly explain infantile amnesia.

**32-4**

1. How does the amygdala play a role in memory processing?

2. Give an example from your own life of a flashback memory. Discuss the meaning of the term “flashbulb” in this context. Are flashback memories implicit or explicit? Explain.

3. Answer the Try This from page 332: Which do you think is more important—your experiences or your memories of them? Explain your thinking.



32-7

1. Use Figure 32.7 and information from the text to provide a new example of priming.
  
  
  
  
  
  
  
  
  
  
2. In what ways can context aid memory recall?
  
  
  
  
  
  
  
  
  
  
3. Explain how state-dependent memory differs from context-dependent memory.
  
  
  
  
  
  
  
  
  
  
4. How does mood-congruent memory influence the retrieval and recall of other memories? How has this worked in your own experiences?
  
  
  
  
  
  
  
  
  
  
5. Use Figure 32.9 and information from the text to explain how the primacy and recency effects relate to the serial position phenomenon. Create a new example that illustrates your explanation.

## After You Read

## Module 32 Review

Answer the following questions to see if you have mastered the basics.

1. The brain structure shown to be essential in laying down new explicit memories of names, images and events is the
  - a. amygdala.
  - b. hippocampus.
  - c. cerebellum.
  - d. basal ganglia.
  - e. hypothalamus.
  
2. The brain structure shown to be necessary in the development of implicit memories for skills, particularly classically conditioned reflexes, is the
  - a. basal ganglia.
  - b. hippocampus.
  - c. amygdala.
  - d. cerebellum.
  - e. hypothalamus.
  
3. Implicit procedural memories for motor movement or skills like riding a bike seem to be a function of the
  - a. amygdala.
  - b. hippocampus.
  - c. hypothalamus.
  - d. frontal lobes.
  - e. basal ganglia.
  
4. Which of the following is a typical example of a flashbulb memory?
  - a. the scrambled eggs you had for breakfast this morning
  - b. the daily homework assignment from your psychology teacher
  - c. your first kiss
  - d. the shirt you wore to school yesterday
  - e. the chores your parent asked you to complete after school
  
5. Which of the following is NOT a measure of retention?
  - a. recall
  - b. recognition
  - c. relearning
  - d. retrieval
  - e. long-term potentiation
  
6. Jim has just memorized the following list of words for his 3rd grade spelling test: host, most, coast, boast, ghost. When asked by a classmate, "What do you put in a toaster?" Jim replies "Toast!" "No, silly!" said his friend. "You put bread in a toaster!" What psychological process caused Jim to reply incorrectly?
  - a. long-term potentiation
  - b. priming
  - c. serial position effect
  - d. implicit memory
  - e. recall

